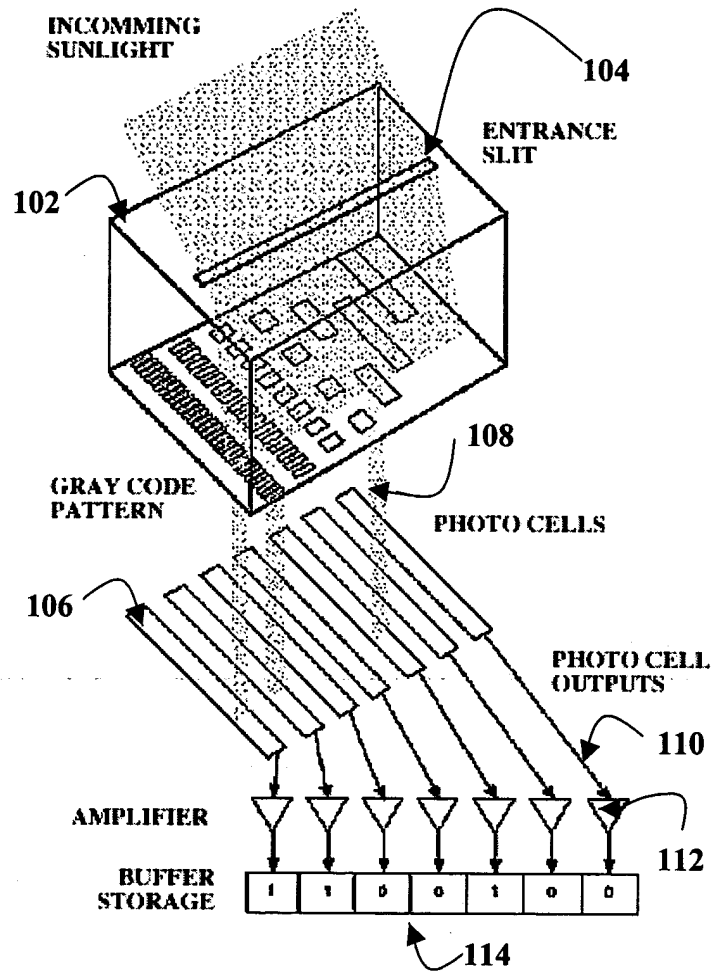




100



**FIG. 1**  
(PRIOR ART)

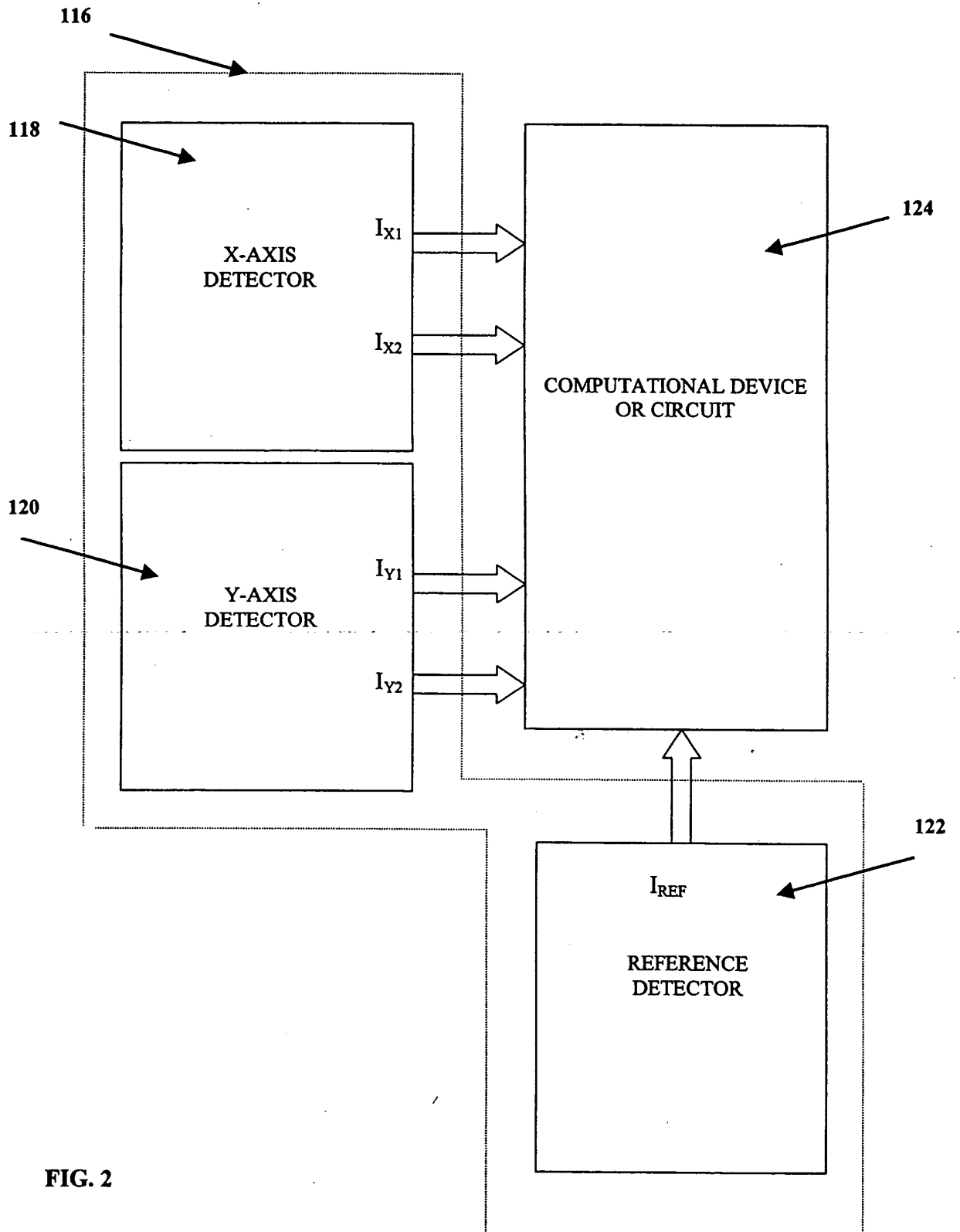


FIG. 2

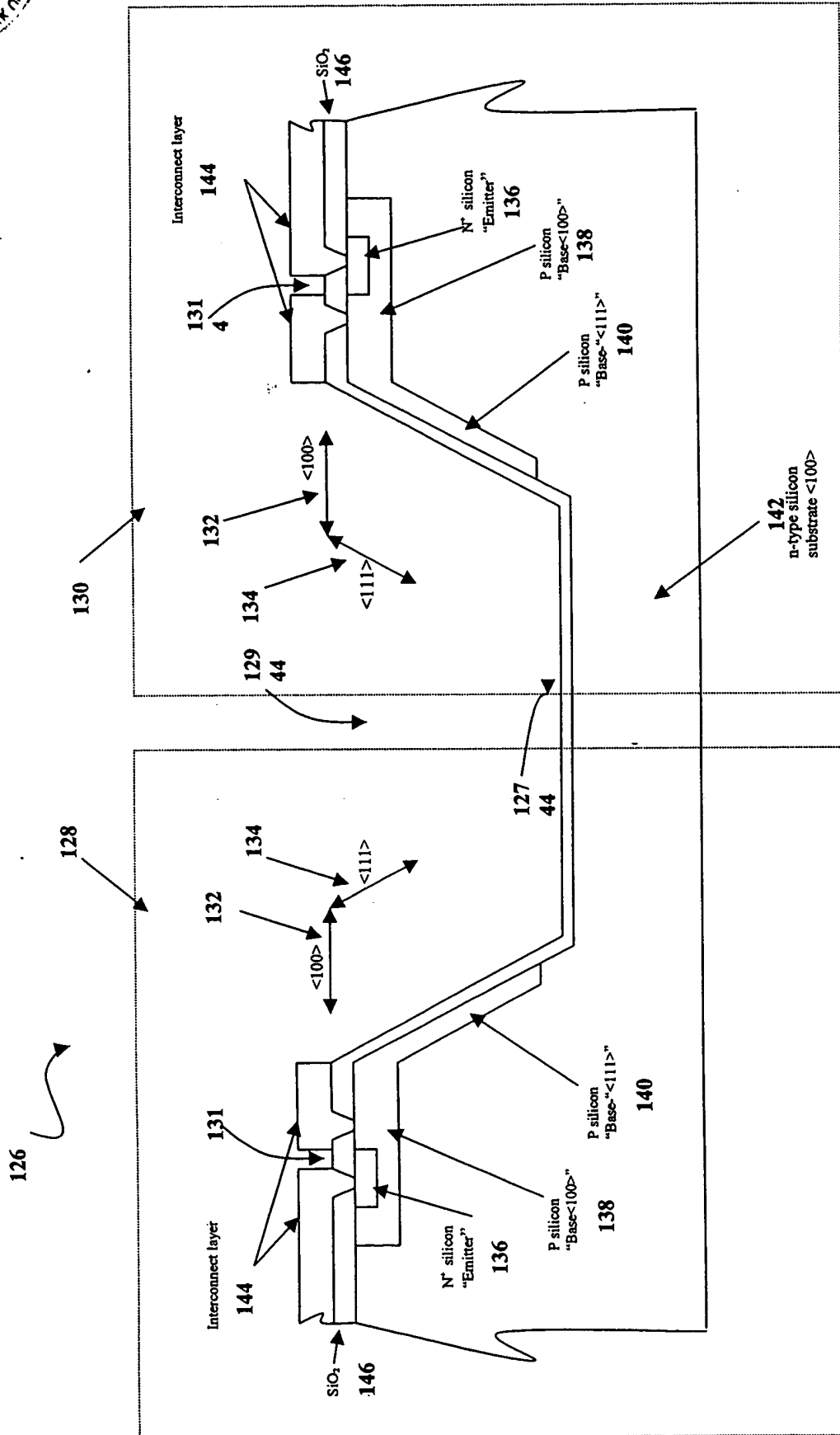


FIG. 3

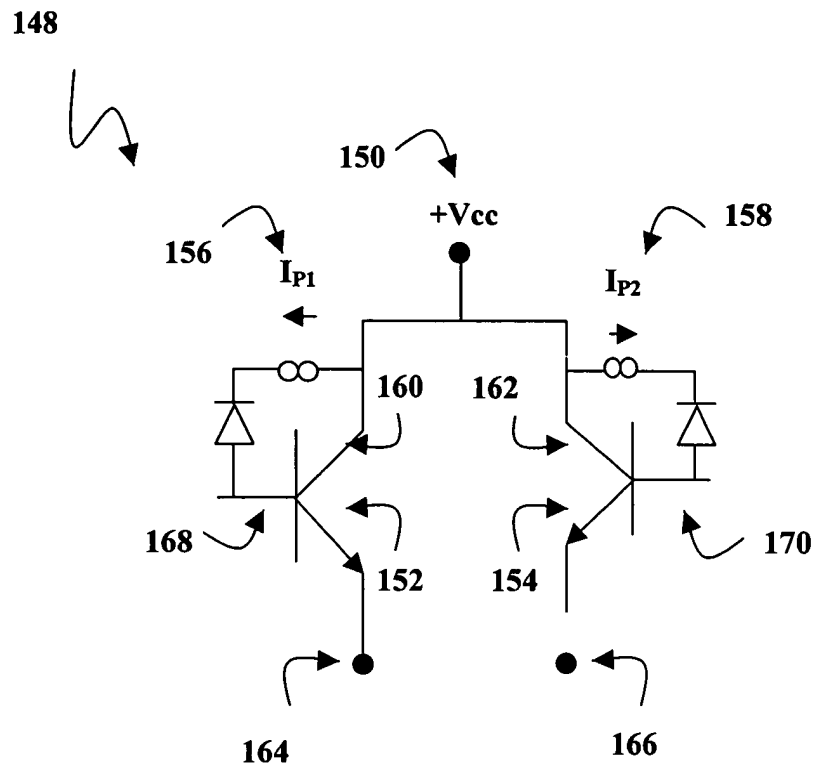


FIG. 4

172

174

176

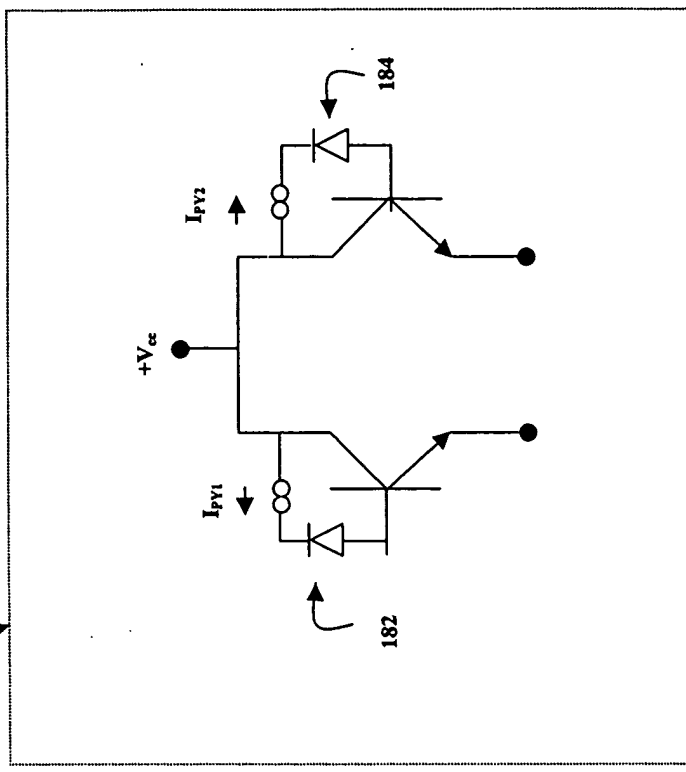
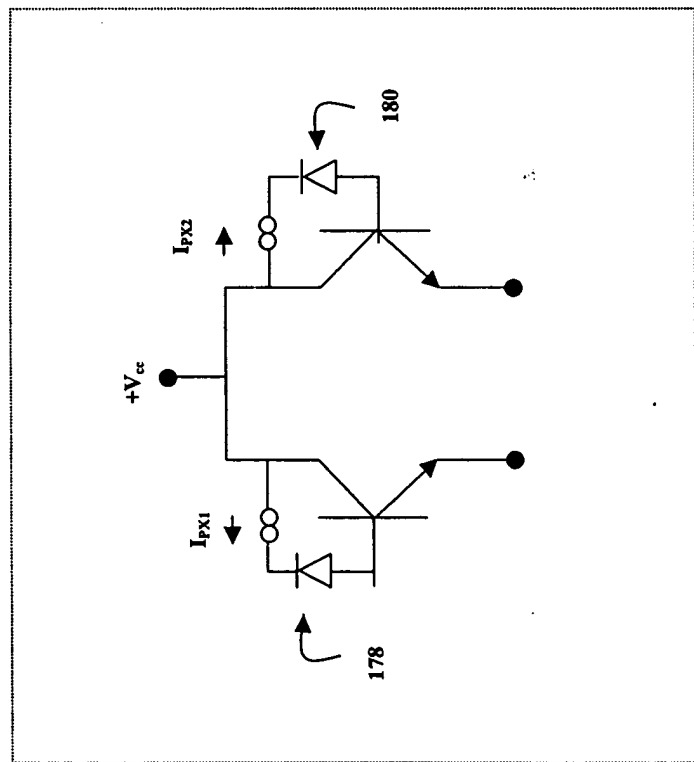


FIG. 5

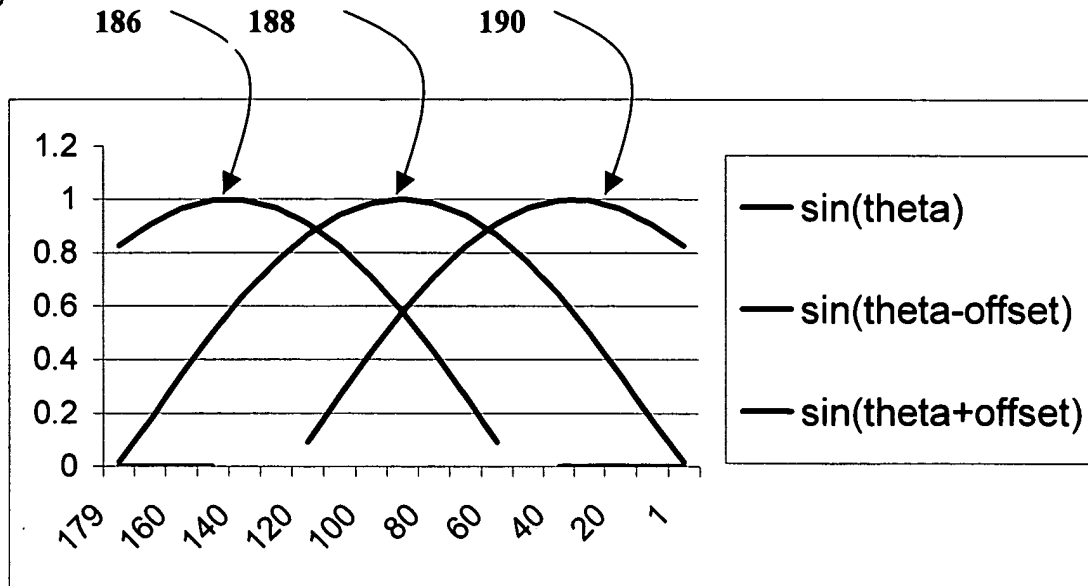


FIG. 6A

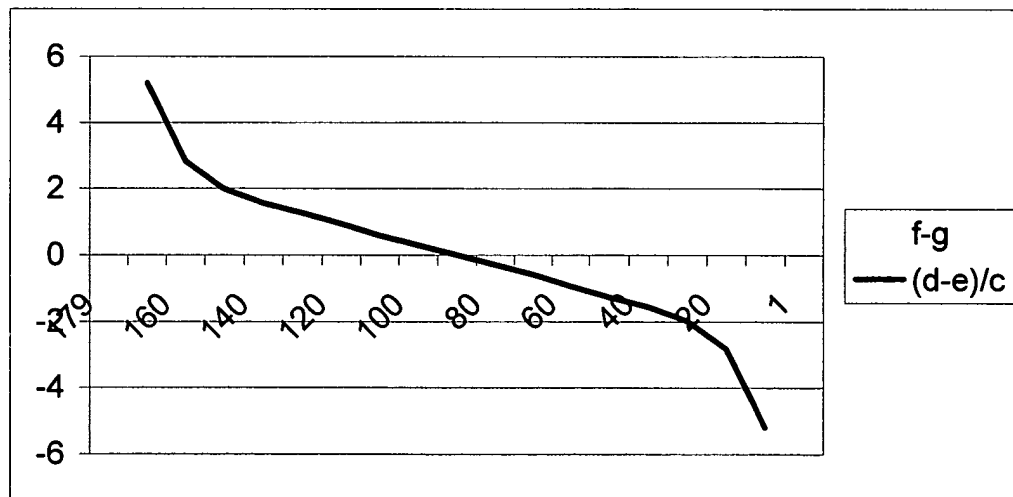


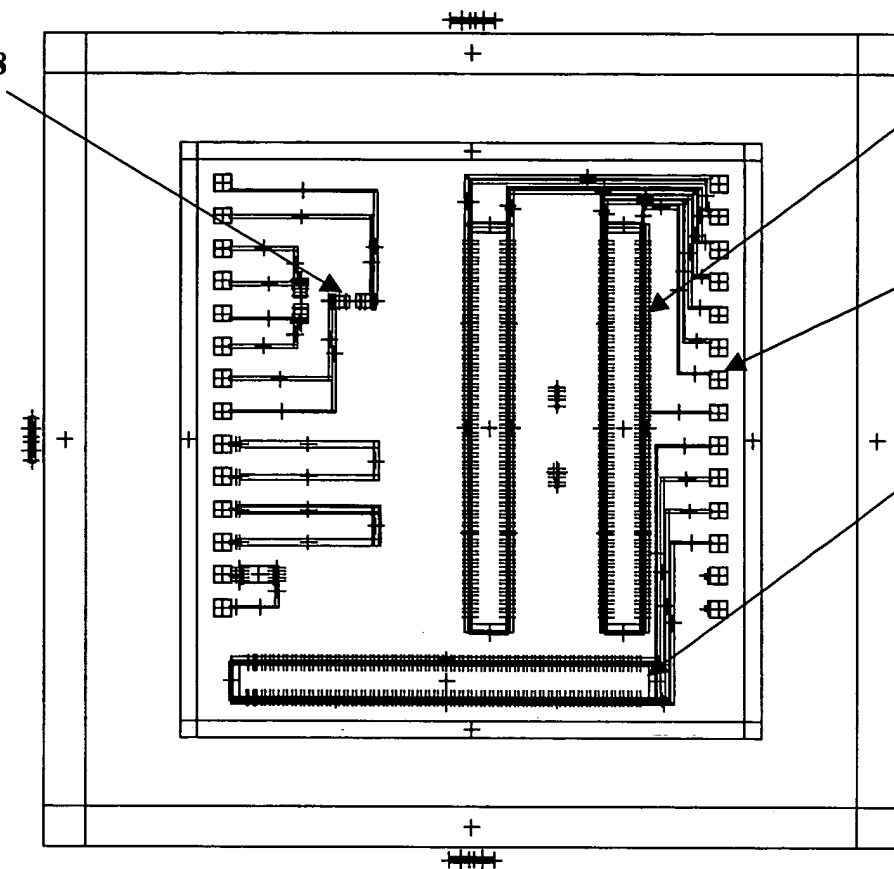
FIG. 6B



192



198



194

200

196

FIG. 7

202



Mask layer #2-1<sup>st</sup> silicon  
etch, 2<sup>nd</sup> boron diffusion, 2<sup>nd</sup>  
silicon etch

204

N<sup>+</sup> diffusion terminates P base <111>  
Mask layer #3

206

P base <100>, mask  
layer #1

208

Contacts to P base <100>, mask  
layer #4

210

N<sup>+</sup> diffusion for  
emitter-mask layer #3

212

Emitter contact-  
mask layer #4

214

Metallization not shown. Contacts to N  
substrate/collector are made with  
additional contacts near bond pads.

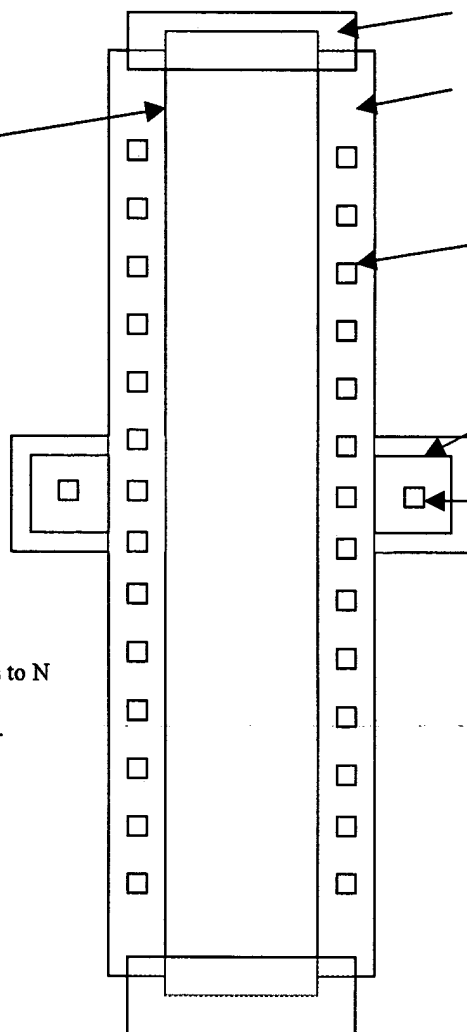


FIG. 8



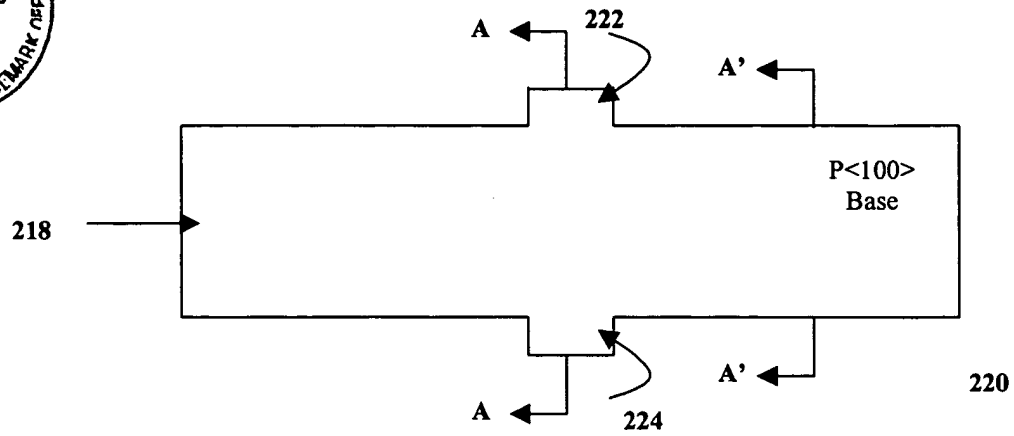


FIG. 9A

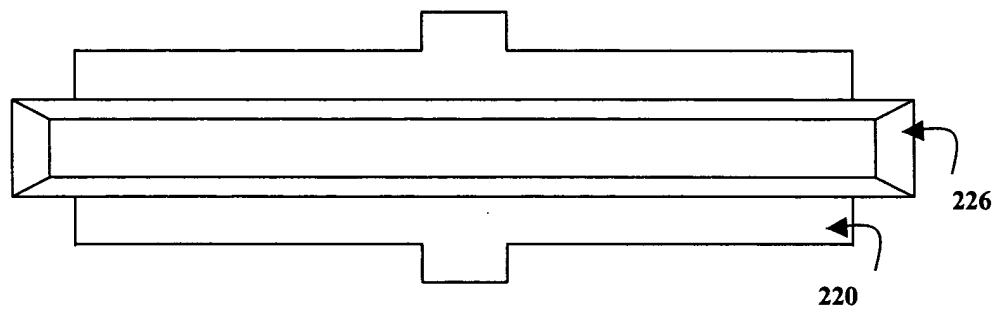


FIG. 9B

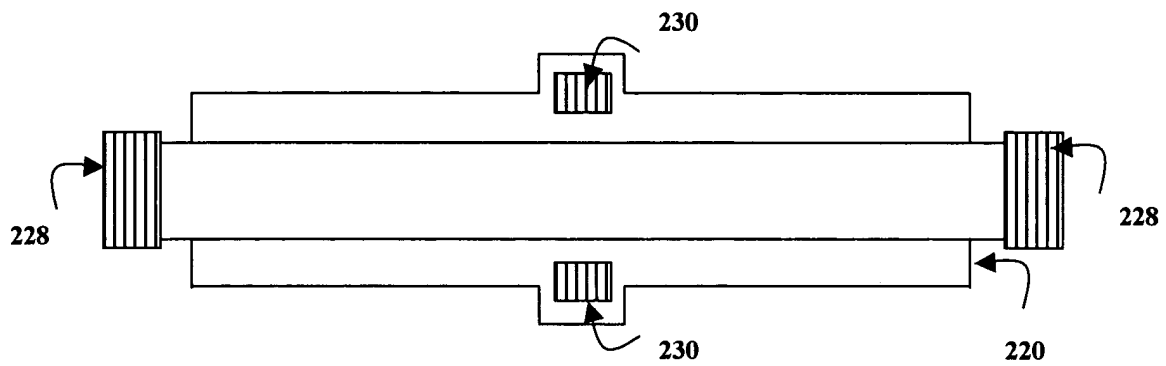
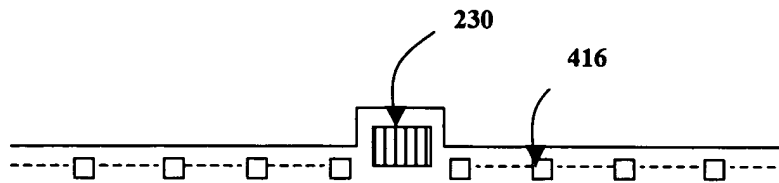


FIG. 9C



**FIG. 9D**

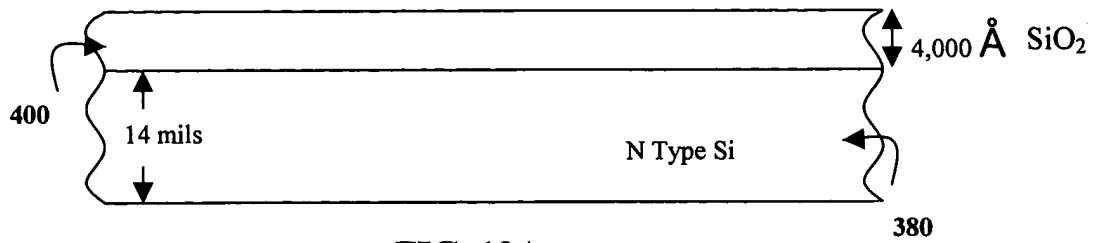


FIG. 10A

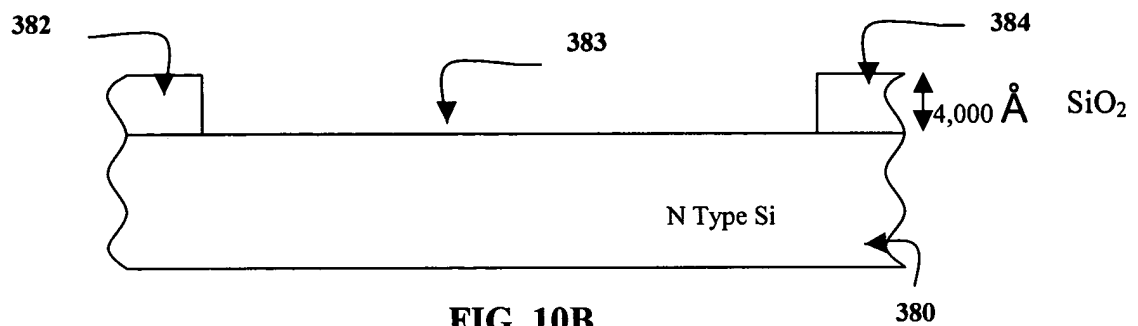


FIG. 10B

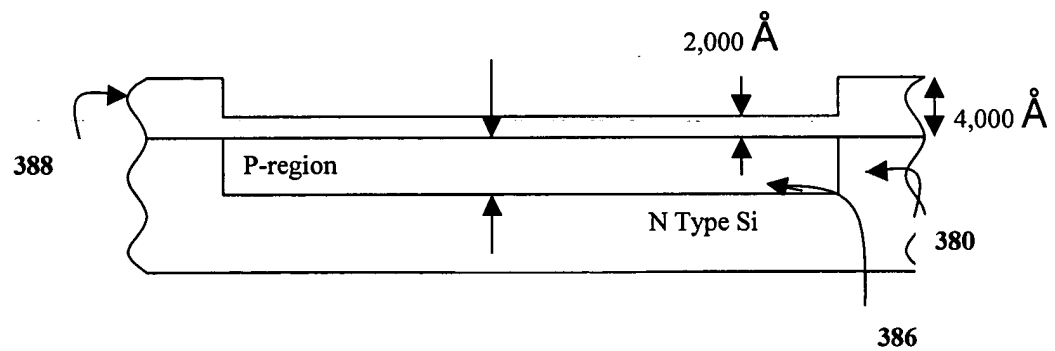


FIG. 10C

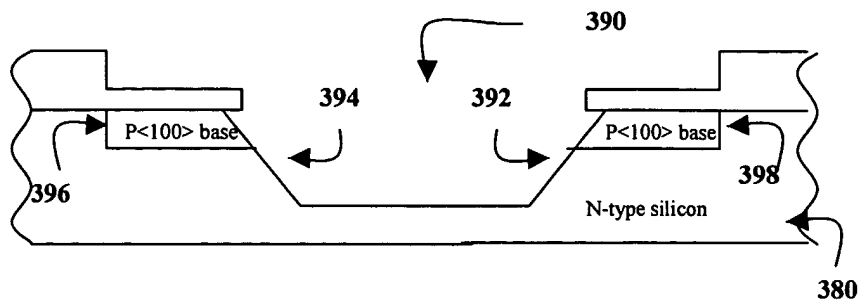


FIG. 10D

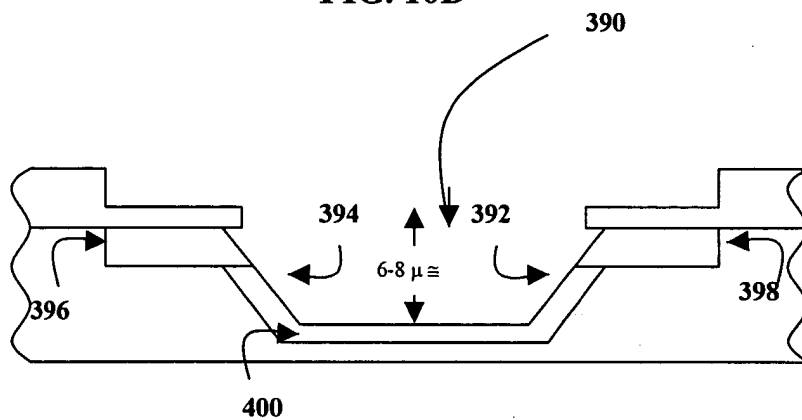


FIG. 10E

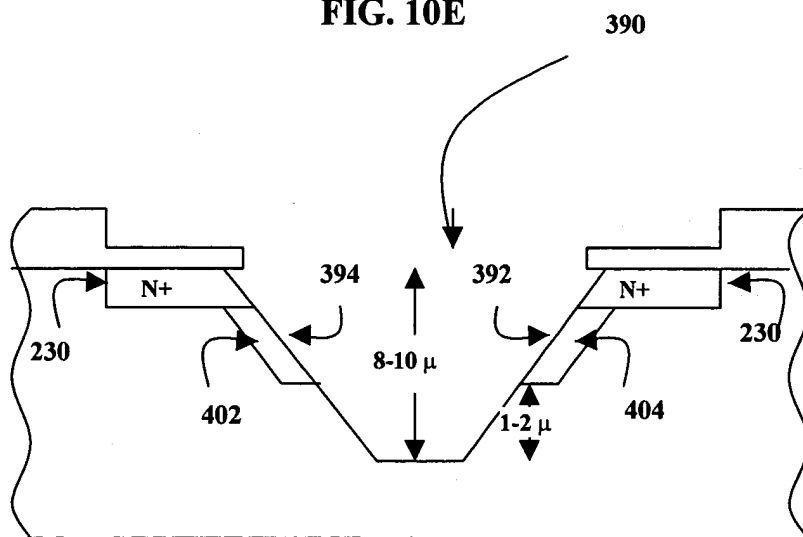


FIG. 10F

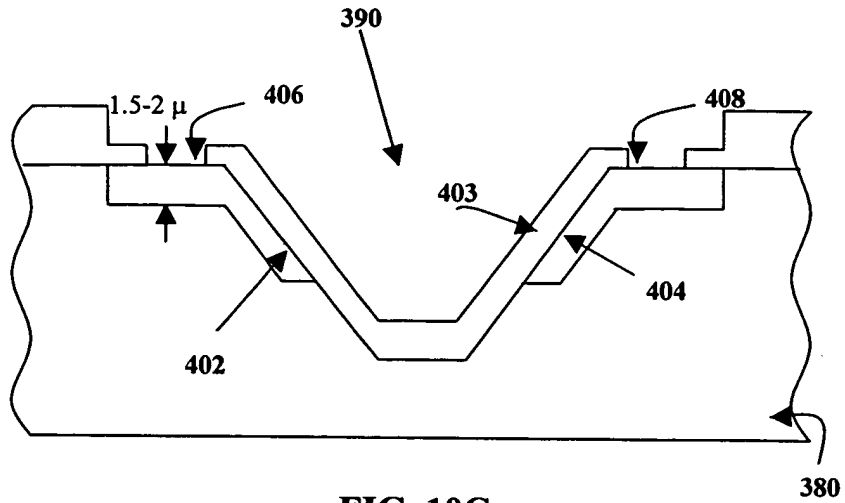


FIG. 10G

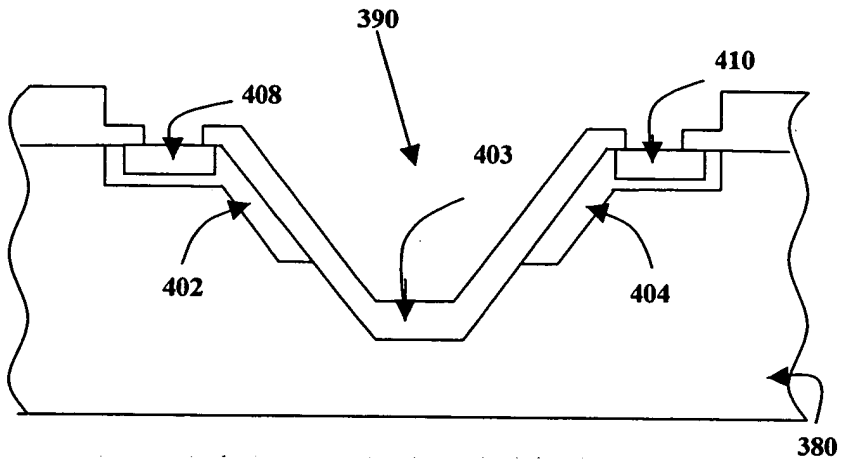


FIG. 10H

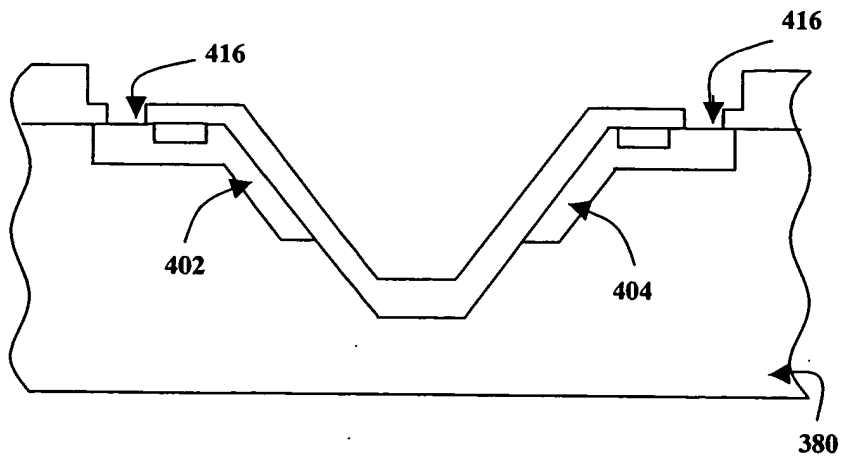


FIG. 10I

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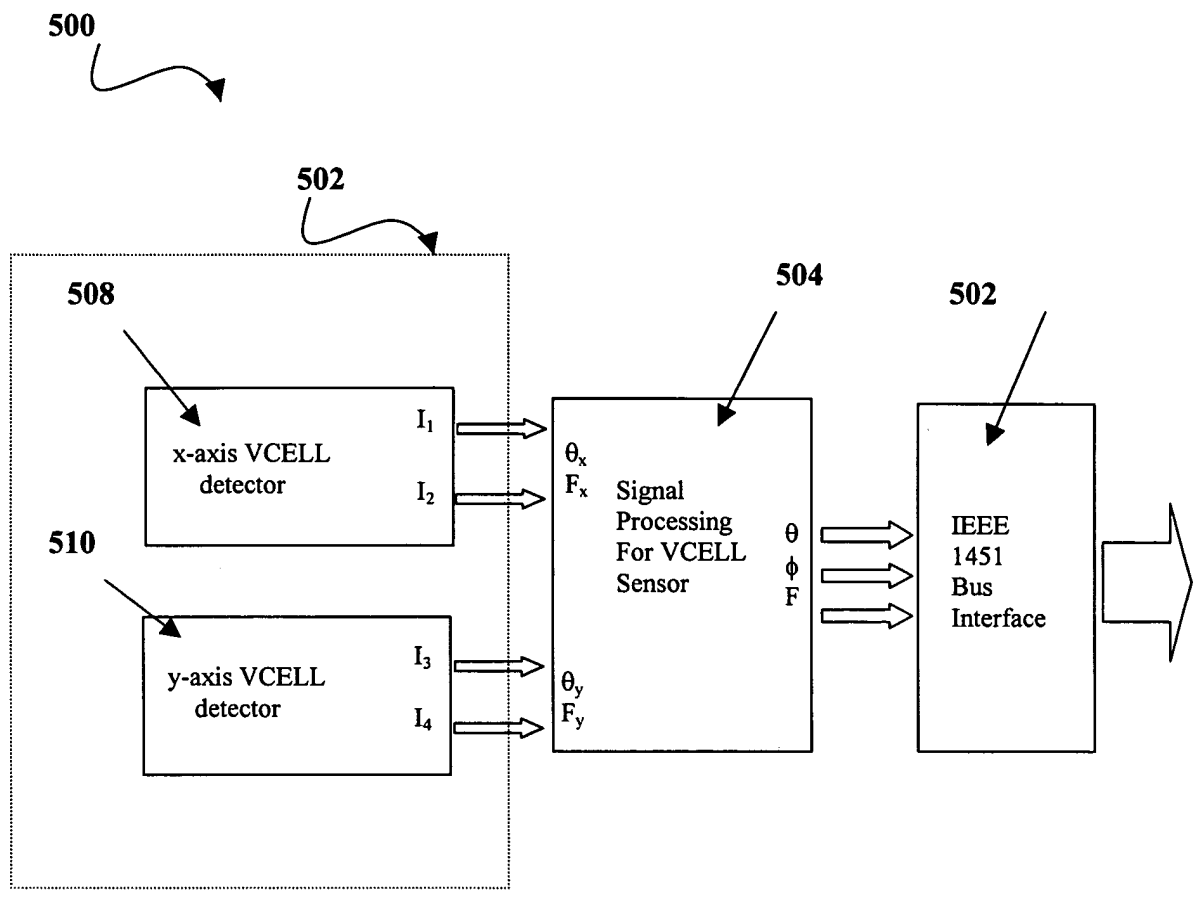


FIG. 11